

Docket No.: 60,130-1280  
00MRA0088**REMARKS**

Reconsideration and allowance are respectfully requested. Claims 1-23 are currently pending and stand finally rejected by the Examiner. Applicants have amended claims 1-3, 6-13, 18, 20, and 21. No new matter has been added. The foregoing amendment and the following remarks place this application in condition for allowance or, in the alternative, in better form for appeal. Entry of this Amendment is therefore respectfully requested.

§ 103 rejection

Claims 1-5, 8-13, 16 and 18 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,665,179 to Isawa et al. ("Isawa") in view of U.S. Patent No. 6,024,893 to Keil et al. ("Keil"). Applicant respectfully traverses this rejection.

The Office Action admitted that Isawa does not teach regulating nitriding potential, but asserted that "it would have been obvious. . .to have used the nitriding potential controlling method of Keil et al in the method of Isawa et al because the controlling method produces high quality nitrided parts" (p. 2). Applicant respectfully disagrees.

Applicant has amended the claims to clarify that the nitride potential is selected based on the type of steel used in the coil spring. Although Keil generally discusses regulating the nitriding potential of a nitriding furnace and atmosphere (see, e.g., Abstract), Keil does not teach selecting the nitride potential based on the type of steel used in the part being treated. Keil only mentions in passing that a nitriding potential can be controlled to a pre-selected value by changing a flow of ammonia supply gas or disassociated ammonia carrier gas to change the volume fraction of hydrogen in a furnace (col. 3, lines 14-27). Keil does not recognize that different types of steel may call for different nitride potentials, much less teach selecting a nitriding potential based on the type of steel in a coil spring and regulating the nitride potential based on that selected value. In fact, Keil's entire focus is on using an existing ammonia dissociator to generate a reference gas so that the system only needs one oxygen probe (col. 1, line 63 to col. 2, line 18).

The claimed invention, by contrast, focuses on customizing the nitriding process to the type of steel being treated selecting a nitriding potential based on the type of steel and then regulating the nitriding potential based on the selected value. This provides closer control over the nitriding process to control the depth and resulting characteristics of nitrogen diffusion into the specific type of steel. Because neither Isawa nor Keil teach selecting a nitriding potential

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based on the type of steel in a coil spring, the Office Action fails to establish a prima facie case of obviousness with respect to claims 1-5, 8-13, 16 and 18 and 21. Withdrawal of the rejection is therefore respectfully requested.

Claims 1, 3-16, 18 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Isawa in view of Applicant's admitted prior art ("Applicant's APA") and "Modern Surface Treatments". Applicant respectfully traverses this rejection.

The Office Action admitted that Isawa does not teach regulating a nitriding potential, but asserted that it would have been obvious to incorporate the process disclosed in "Modern Surface Treatments" to suggest the claimed invention. Applicant respectfully disagrees.

"Modern Surface Treatments" only teaches a process that can control nitrogen concentration in a gas nitriding process. "Modern Surface Treatments" merely outlines the advantageous results of its process without actually describing the process in any detail, much less teach selecting a nitriding potential based on a type of steel to be treated and then regulating the nitriding potential based on the selected value. At best, the reference simply teaches a process for controlling the nitriding potential without providing any specific guidance on how to determine the appropriate nitriding potential in the first place. The only reference to different types of steel is on page 5, which simply states, "The rules applying to nitriding of stainless steel or refractory alloys are no different than those for the other groups of steels, with one exception. The exception is the proprietary de-passivation stage that allows for a removal of oxides of alloying elements such as Cr, Ni and others". In other words, the reference assumes that the nitriding potential is the same for different types of steel.

Thus, nothing in Isawa, Applicant's APA, or "Modern Surface Treatments" teaches selecting a nitriding potential based on a type of steel in a coil spring or any other structure. The Office Action therefore fails to establish a prima facie case of obviousness with respect to claims 1, 3-16, 18 and 21, and withdrawal of the rejection is respectfully requested.

Claims 17 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Isawa in view of Keil or "Modern Science Treatments" as applied to claims 1 and 10 and further in view of U.S. Patent No. 5,108,544 to Hakansson ("Hakansson") and U.S. Patent No. 4,023,989 to Dobo ("Dobo"). Applicant respectfully traverses this rejection.

Claims 17 and 20 depend on patentable independent claims 1 and 10, respectively, and are therefore patentable for the reasons explained above. Adding Hakansson and Dobo to the

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combination still fails to teach the claimed invention because Hakkanson and Dobo focus on removing material from a steel surface, not on selecting a nitriding potential based on the type of steel being treated. Thus, the Office Action fails to establish a prima facie case of obviousness with respect to claims 17 and 20, and withdrawal of the rejection is respectfully requested.

Claims 19, 22 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Isawa in view of Keil or "Modern Science Treatments" as applied to claims 1, 10 and 11 and further in view of U.S. Patent No. 5,009,843 to Sugimoto ("Sugimoto"). Applicant respectfully traverses this rejection.


Claims 19, 22 and 23 depend on patentable independent claim 1 or 10 and are therefore patentable for the reasons explained above. Adding Sugimoto to the combination still fails to teach the claimed invention because Sugimoto focuses solely on a spring containing aluminum to improve the grain size of the resulting AIN and thereby its sag resistance and durability (col. 3, line 40 to col. 4, line 4). Nothing in Sugimoto even addresses nitriding, much less teach selecting a nitriding potential based on the type of steel being treated. Thus, the Office Action fails to establish a prima facie case of obviousness with respect to claims 19, 22 and 23, and withdrawal of the rejection is respectfully requested.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance, and a Notice to that effect is earnestly solicited.

Applicant believes that no additional fees are necessary, however, the Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds for any additional fees or credit the account for any overpayment.

Respectfully Submitted,

CARLSON, GASKEY & OLDS, P.C.

  
Anna M. Smith  
Registration No. 36,372  
Attorneys for Applicant  
400 West Maple Road, Suite 350  
Birmingham, Michigan 48009  
(248) 988-8360

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